REPEAT MIGRATION AND DISAPPOINTMENT*

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Introduction

There has been a growing interest among economists in the phenomenon of repeat migration. Most of the work in this area has started with the assumption that some migration decisions are based on incorrect or incomplete information about job prospects and wage opportunities in the destination region, such that *ex post* some of these moves constitute non-optimal decisions. Consequently repeat migration, particularly that which occurs shortly after the initial move, is likely to be an unplanned and corrective decision triggered by a disappointing experience after the initial move.

This paper investigates the determinants of repeat migration among forty-four regions of Canada, using information from a large micro data base which spans the period 1968 to 1971. Repeat migrants are defined as persons who, having made an initial interregional move, make another move a year or two later. Some *return* to a region of former residence, while others move *onward* to another region. The central hypothesis of the paper is that repeat migrants, relative to those who do not make another move (stayers), are more likely to have had less success in terms of the income experience after the initial move. It is this less successful experience (or disappointment)

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that plays a major role in motivating the decision to move again shortly after the initial move.

While the subject of repeat, and particularly return, migration has received considerable attention [16;17;18;3], there is little direct evidence on the disappointment hypothesis. Since the initial movers have three choices after the move (stay, return, move onward) our empirical analysis utilizes the polytomous logit model. Aside from disappointment, most of the variables in the model are fairly standard in the migration literature, including prior migration experience variables which turn out to be quite significant. Generally speaking, the results support the disappointment hypothesis.

Although the primary interest is in the specification and testing of the disappointment hypothesis, it should be stated at the outset that there are many other motivations for repeat migration, and one must be careful in the interpretation of empirical results. For many people repeat migration is part of a planned pattern, and an attempt was made to control for their behaviour by identifying specific groups, such as students and intra-company transfers, but this treatment is probably not comprehensive; if a planned repeat migration decision also happens to be accompanied by a temporary reduction in income there is a danger of misinterpretation. Some people are "chronic" migrants, but they may not be readily identifiable, although an attempt has been made to control for past migration behaviour; as indicated, a number of these prior migration experience variables are quite significant. We have no information on where an individual was born or brought up, and it is likely that some of the so-called onward moves in fact are of the "return" variety as individuals move back to a region that they know well from earlier experience: In previous research [11] allowance has been made for this possibility.

Theoretical Issues

Part of the calculus involved in determining the expected net present value of a move is the expected duration of stay in a particular destination region. Based on the expectations prevailing at the time of some initial move, various individuals may plan short stays in a particular location, intending to make repeat moves. Examples are individuals who anticipate regional transfers within a company (or government structure); those who, by the nature of their occupation, must move often from one job site to another; and those who initiate changes in human capital concurrent with an initial move (training and education) but who expect to garner the returns from these activities in other locations. Moreoever, there will be some individuals who have preferences for frequent locational change.

Short durations of stay may also be unanticipated with respect to the expectations formed at the time of the initial move. As more information is accumulated through time after an initial move, additional geographical moves may become profitable [13]. Moreover, a first move, by changing the nature of one's human capital, may provide new opportunities elsewhere which were not anticipated at the time of the initial move [15]. However, there also will be a proportion of initial migrants who cut short their anticipated stay in a destination region because their actual income experience there indicated that their initial expectations were permanently overestimated. As a result, repeat moves either to a new location (onward moves) or back to a former region (return moves) will be made shortly after the initial move. This is the disappointment hypothesis of repeat migration.

The disappointment hypothesis combines certain features of search theory with the human capital framework [1;4;19]. Most migration decisions are made under conditions of uncertainty due to incomplete information. Potential migrants are assumed to form expectations about incomes in destination regions based on their human capital attributes as well as on the information they have accumulated from various sources, including premigration search activity. Information is not costless; the potential migrant invests in search only as long as the perceived benefits from having more information outweigh the costs.

It is assumed that the choice of a particular location in the original migration decision was optimal given the expectations prevailing at the time, although there may have been other destinations which were expected to yield a migration return, albeit smaller than that for the chosen destination. Once a decision to migrate has been implemented the actual income experience in the destination will in general differ from expectations. Since only those who anticipate positive net benefits of migration will move, initial migration may be selective; it should select against those who underestimate the net returns and attract those who overestimate them [1]. This being the case, the initial income experience for many migrants will be that actual returns fall short of expected values.

It is assumed that not all of the discrepancy between actual and expected income is thought to be transitory. In other words, if premigration expectations turn out to be incorrect, then post-migration expectations will be modified on both the basis of new information and the discrepancy between actual and expected incomes [2]. The change in expectations will alter the calculus concerning the relative merits of various potential migration choices. From the revised calculus it may emerge that while the original migration decision was optimal, a decision to stay longer in the destination region is no longer optimal. In other words, with revised expectations and considering all

expected costs of moving, it will now be optimal to relocate again, a repeat migration decision.

While the process described above is called the disappointment hypothesis, it might be more appropriate to think of it in terms of relative success. Disappointment would, strictly speaking, only occur if actual income was less than expected. But such a strict interpretation would ignore that there are other differences between individuals, including attitudes to risk-taking and differing possibilities of disappointment about other factors in the initial destination. Other factors might include climate and surroundings, public goods, social and cultural amenities, and kinship and friendship relations. Since these factors are generally unmeasurable, it has been assumed that the incidence of this type of "psychic" disappointment is distributed across the population of initial migrants, with a distribution that is in a statistical sense not dependent on the distribution of income disappointment. This implies that a smaller actual-expected income ratio is more likely to contribute to "total" disappointment, which may trigger a repeat migration decision.

The choice of the destination of the repeat move will depend on revised income expectations, including those in the origin region, as well as all anticipated migration costs. If repeat migration were randomly distributed in terms of subsequent destinations, then a move back to the origin region (a return move) would only be a very small proportion of total repeat migration; namely, 1/43 in our classification of forty-four Canadian regions. In fact, according to our data, return migration accounts for more than half of all repeat moves during the year after the initial move. The reasons for this have been discussed in the recent literature [4;5;6]. The migrant has more information about and knowledge of the origin region than of possible "onward" regions, and the possession of location-specific capial, and kinship and friendship ties with the origin region also reduce the relative costs of a return versus an onward move.[1]

This brief theoretical review suggests several testable hypothesis of repeat migration behaviour. We will briefly discuss the empirical variables contained in our data set which will be used to test these propositions.

Hypothesis 1: Some repeat moves are triggered by occupational, personal, and human capital considerations.

Although the primary interest in this study is to test the disappointment hypothesis, other factors which are likely to affect the probability of a repeat move must be controlled for. Our data do not permit identifying the reasons why individuals made moves, so we resort to the technique of including a series of proxy variables in our empirical work. Company transfers vary between occupations and industries; therefore we include a number of variables representing occupational and industrial classifications. In order to reflect the move for training purposes we include a variable which indicates whether a person was a student, in the sense of tuition fee payment, during the period of the initial move. We anticipate that a "student" is more likely to become a repeat (and especially a return) migrant. To represent the "taste for travel" aspect, we include a number of variables reflecting the individual's migration history in the four years prior to the initial move. We expect that persons who have moved frequently in the past are more likely to be repeat (especially onward) migrants during the period under consideration [8]; company transfers may also be proxied by these prior migration variables.

Differences in language and cultural attachments are likely to be reflected in the distribution of preferences. Therefore, we include origin dummy variables representing five broad regions of Canada. Although we could have included provincial or even regional dummy variables to capture taste differences, this would have reduced statistical degrees of freedom.

Some migrants experience or initiate changes in human capital or kinship attachment roughly concurrent with the initial move. These changes can obviously affect the probability of a repeat move. In this category we include variables representing changes in occupation and marital status. Occupational change may have two opposing effects: it may increase the cost of repeat, including return, migration to the extent that the next occupation is specific to the initial destination region; on the other hand, the willingness to change occupation may also reflect individual tastes in favour of mobility. Changes in marital status affect costs of repeat migration and may also reflect taste differences. Both effects work in the same direction. For example, becoming married concurrent with the initial move increases an individual's cost of migrating again and it may reflect a desire to "settle down".

Hypothesis 2: The less the relative success (the greater the disappointment) of the income experience of an initial move, the greater the likelihood of a repeat move.

We have assumed that migration decisions are based solely on expected income levels; therefore, other characteristics of the income distribution such as dispersion are not considered. Our disappointment variable is defined as the difference between the logarithm of actual and the logarithm of expected income in the destination region of the initial move. We anticipate a negative coefficient for this variable in our logit equation. It should be pointed out that our disappointment

[1] The phenomenon of return migration may be even more important than indicated by our strict measure. Herzog and Schlottmann [12] and Grant and Vanderkamp [11] argue that a significant part of onward migration is in fact of the backward variety; namely, toward a region closer to the original "home" region.

variable relates to annual wage income, which therefore also incorporates the element of a disappointing unemployment experience.

Our construction of expected income, which is described in detail in the next section, is based on an earnings-generating function technique using observable personal, labour market, and human capital characteristics of individuals. Unfortunatley, our data set contains no information about how expectations are formed, the source of migration information, and the extent of premigration search. With respect to premigration search activity, some of the variables that influence earnings may also affect the costs and returns of search. As a result, we have included some of these as separate arguments in the logit specification.

Premigration search is likely to be a function of the individual's level of education [7]. Our data have no measure of educational attainment, so we use the level of wage income in the year prior to the initial move as our proxy. A higher prior income may also reflect higher costs of repeat migration. For both reasons, we anticipate that the probability of repeat migration will be lower for individuals with high levels of prior income.

Moreover, the greater the distance of the initial move the less likely is premigration search to have occurred, because distance increases the cost of premigration search. Thus, information is likely to be less accurate for those destinations the greater the distance from the origin region. The "information effect" of this distance variable has been the major feature of the testing of the disappointment hypothesis in the literature [4]. Since this variable also represents a number of other factors, we shall return to the various roles played by this variable.

Hypothesis 3: The probability of a repeat move decreases with the expected costs of the repeat move.

Migration costs differ by individual characteristics. We anticipate that moving costs will be higher for married, older, and high-income individuals. Married individuals are anticipated to have lower migration probabilities because of larger migration costs, and also because the migration decision involves other family members. It is important to note that age influences the probability of a repeat move in another way; the payoff period is shorter for older migrants. Both effects work in the same direction and hence we anticipate that repeat migration probabilities will be lower for older migrants.

The distance of the repeat move should also be an important determinant of the repeat migration decision, but this variable has not been included in our specification because we did not know the appropriate value to assign to those who did not move (stayers). The distance of the initial move plays a somewhat different role for return

migration compared with onward migration. The distance of the initial move is by definition equal to the distance of the repeat move for return migrants; thus, the distance variable represents an important element in the cost of return moves and implies a negative relation between the distance of the initial move and the return migration probability. This effect is of no significance for onward migrants. Therefore there are two opposing effects of the distance variable on return migration probabilities, and we cannot be sure whether the net effect is positive, negative, or insignificant. For onward migrants there is a reason for expecting a positive relationship, since people who undertook a long-distance move initially are more likely to have a taste for travel. In short, the distance of the initial move is expected to have a positive influence on the onward migration probability, but its effect on return migration cannot be anticipated *a priori*.

Hypothesis 4: The probability odds of a return move compared to an onward move will be higher for individuals who have more location-specific capital in the origin region.

Our specification does not formally model the choice of the destination region of the repeat move. However, for the reasons cited earlier, we anticipate that individuals who had longer durations of stay in the origin region will be more likely to return to that locality. We use an individual's migration history in the four years prior to the initial move to obtain this information. Specifically, we include a variable (Tenure) which measures the number of consecutive years that an individual lived in the origin region before making the initial move.

Data and Empirical Specifications

Our micro data base is described in considerable detail in Grant and Vanderkamp [9;10]. This particular sample is comprised of individuals in non-military occupations with continuous annual information concerning location for the four-year period 1968-71. Approximately 5,000 individuals made their initial interregional move in 1968-69 (IM68-69) while about 3,500 made an initial move in 1969-70 (IM69-70). The IM69-70 group of initial migrants is considerably smaller than the IM68-69 group, largely because the IM69-70 group excludes people who moved in 1968-69.

We excluded individuals with wage income less than $100, to eliminate people who were in fact not members of the paid civilian labour force. For the IM68-69 group this restriction was imposed with respect to wage income for 1968, 1969 and 1970, while the restriction for the IM69-70 group related to wage income in 1969, 1970 and 1971. The reason for the exclusion is that for those individuals labour

market experience, which is particularly relevant for our (income) disappointment measure, is not adequately captured by our variables. We shall briefly examine this issue at a later stage of our empirical work. These exclusions eliminate about 1/8 of the initial mover groups. A rough breakdown of the excluded groups into entrants, leavers and intermittent participants (based on which year(s) the restriction applies to) indicates that females are somewhat more important, particularly among leavers, and that young people are more dominant among entrants and older people among leavers. These tendencies are in line with general patterns of labour force participation. People who are disappointed may, of course, decide to drop out of the labour force as an alternative to repeat migration, but we have no direct way of capturing their disappointment; to evaluate such labour force withdrawal cases would require a more elaborate data set, perhaps based on detailed personal surveys.

Locational designation is derived from the home address from which an individual mailed his (her) tax return before the end of April of the year following the taxation year. The 337 locality codes (excluding outside Canada) were aggregated into 44 regional areas (see Appendix C of Grant and Vanderkamp, [9]). A change in the regional code from one year to the next is defined as an interregional move. The timing of a move is such that, for example, for the IM68-69 group the actual initial move took place between March-April of 1969 and March-April 1970, because individual tax forms are mailed three to four months after the completion of the relevant taxation (calendar) year.

A return move for the IM68-69 group refers to a move in 1969-70 back to the 1968 region, while a return move for the IM69-70 group refers to a move back to the 1969 location in the period 1970-71. Although we have considered the first move to be an "initial" move, this is clearly not the case for up to 30 percent of some migrant groups (see Table 1). Unfortunately, due to the absence of tax records, comprehensive information concerning location in the 1965-67 period is missing for about one third of all individuals. Lack of a tax record relates to participation behaviour, and this group largely consists of entrants and intermittent participants in the labour force.

Prior migratory experience before 1968 for those individuals who had complete or partial record of locational codes is captured by the various variables indicated in Table 1. The variable "Return" is a dummy variable which indicates whether an individual had previously lived in the destination of the first move sometime in the period 1965-67. We have included this variable to guard against the possibility that the initial move may have been a return move. We anticipate that a migrant who returns to an earlier destination will be less likely to be a

repeat migrant during the period under consideration. The variables "Move 1" and "Move 2" refer to one and two moves made in the 1965-68 period, respectively. The variable "Tenure" measures the number of consecutive years in the initial region prior to the initial move while the variable "Never Moved" is a dummy variable having a value of unity for those who had made no prior recorded interregional move between 1965 and 1968.

Our micro data base also provides information on migrants' characteristics such as age, sex, marital status, changes in marital status (for IM69-70 only), and "student" status. Other information on occupation and industry is only available for members of the insured population. The insured population refers to individuals who were eligible for unemployment insurance; this covers about 60 percent of our sample, and excluded categories are mainly those with a salary above a ceiling level and self-employed individuals.

Our data base provides information on actual wage income, but, of course, it does not provide any information on the expected wage income of individuals. It was therefore necessary to estimate individual earnings functions to provide estimates of expected income levels. The specification of the earnings function is essentially identical to the one featured in Grant and Vanderkamp [10], and an example is provided in an appendix to this paper. Using more than 20,000 observations (including individuals who did not migrate), we estimated four equations with the logarithm of wage and commission income as the dependent variable in each case. Along with variables to control for personal characteristics and labour market factors, we included 43 dummy variables, one for each region (the omitted variable was region 44).[2] Two regressions were run, using in both cases the 43 regional dummies reflecting the individual's location in 1969: one for the (ln of) wage income in 1969 and one for (ln) wage income levels in 1970. All other independent variables were dated appropriately. In a similar fashion, we estimated earnings functions for 1970 and 1971 using codes for regions in 1970. Using the coefficients from the relevant earnings equation and individual's characteristics, including the appropriate destination region, we calculated a "simulated" value of (ln) wage income expectations for each initial move.

A few comments about our construction of the expected income variable are required. First, the 20,000 observations used to estimate

[2]This technique assumes that expected income in the destination region does not differ by various individual characteristics. To check this assumption the 43 regional dummies were interacted with certain characteristics such as age, sex, and occupational groups and then expected income was re-estimated for each individual. These values were then used in the migration (logit) equation. None of the reported results were significantly affected with this alternative simulation of expected income.

Table 1

VARIABLES AND THEIR MEANS

	Initial Movers 1968-69, Choice in 1969-70			Initial Movers in 1968-70, Choice in 1970-71		
	Return	Onward	Stay	Return	Onward	Stay
Number of Cases	525	497	3971	432	281	2838
Age, in year of initial move	28.3	27.4	30.4	29.3	28.6	31.3
Female	.30	.32	.31	.27	.29	.30
Single — Marital status in year prior to move (M.S. unknown omitted);				.48	.45	.37
Married — Only married available for 1968, omitted class for IM68-69	.42	.43	.55	.42	.46	.55
Other — Includes all others				.05	.04	.05
S-M — Changes in marital status during initial move (not available for IM68-69)				.11	.14	.11
M-O				.03	.04	.01
O-M				.01	.01	.01
Student in year of initial move	.15	.14	.11	.12	.14	.13
Distance of initial move ('00 miles)	4.57	6.10	4.43	4.38	5.97	4.09
Atlantic — Location of origin region (Ontario omitted class)	.11	.11	.09	.11	.08	.09
Quebec	.19	.15	.23	.19	.16	.25
Prairies	.13	.19	.12	.11	.17	.11
West (Alberta & B.C.)	.26	.25	.22	.28	.23	.19
CHOCC: Change in occup. during initial move period	.19	.15	.17	.19	.11	.15
Non-Manu(facturing industries) in year prior to initial move	.42	.42	.37	.43	.40	.37
Managers — Occupations refer to classifications in year prior to initial move (omitted group no occup. record)	.04	.05	.05	.05	.08	.06
Clerical	.11	.10	.12	.10	.09	.12
Sales	.06	.03	.04	.06	.06	.04
Transport & Communication	.07	.03	.03	.06	.02	.03
Primary	.03	.04	.03	.01	.05	.02
Crafts	.14	.12	.15	.17	.11	.15
Labourers	.10	.06	.07	.09	.09	.06
Service	.04	.04	.03	.04	.04	.03
Never Moved: No prior migration since 1965	.38	.25	.38	.40	.30	.39
Move 1 — Number of moves prior to initial move (omitted class earlier record missing)	.18	.31	.28	.16	.27	.24
Move 2	.02	.05	.03	.02	.05	.02
Return: Initial move return to earlier location	.12	.13	.17	.08	.09	.14
Tenure: Consecutive years in initial location since 1965 prior to initial move	1.65	1.23	1.61	2.75	2.42	2.71
D-variable: Relative success in year after initial move	-.080	-.003	-.034	-.094	-.062	-.037
WCY: Wage income ($'00) in year before initial move	39.6	40.5	50.5	50.5	31.4	57.0

expected income are comprised of those in a particular region who never moved, those who moved to that region before 1968 but not in the period 1968-71, and those who moved to that region in the period 1968-71. We are not able to estimate the expected income of recent migrants using the experience of past migrants to that region because of a small number of observations for each region. Second, this technique ignores the possibility that there can be significant unobservable differences in earnings potential between individuals already in a region and migrants to the region. It also ignores the same possibility among migrant groups (one-time, return, and onward). With respect to the latter, we know of no econometric technique which adjusts for selectivity bias in a polytomous logit or probit equation. With respect to the former, we used the procedure described by Robinson and Tomes [14] to adjust expected incomes between those who did not make an initial move and those who did. The inverse-Mills ratio was calculated for each individual, and a new simulated value for expected income was calculated. Unlike the results of Robinson and Tomes, we found little evidence of selectivity bias and thus adjusted and unadjusted expected income levels did not differ significantly. Therefore, our calculation of the disappointment variable uses expected income estimated by OLS equations.

The D-variable, representing disappointment, is measured as the difference between (ln of) actual wage income after the initial move and (ln of) "expected" wage income for the same year in the initial destination region.

We do not know the exact timing of the initial move, and this creates a problem in deciding what is the appropriate dating of our D-variable. A 1968-69 move took place sometime between March-April 1969 and March-April 1970 and the subsequent move 1969-70 would take place between March-April 1970 and March-April 1971. Consequently it is not clear whether the appropriate actual and expected incomes in the destination region are dated 1969 or 1970. Using 1 October as the mid-point, the 1970 experience in the initial destination region is expected to be more important than the 1969 experience. As indicated, the earnings equations for initial migrants 1968-69 (IM68-69) were run separately for 1969 and 1970 income levels, while the equations for IM69-70 were estimated separately for 1970 and 1971 income levels; in both instances we expect the disappointment variable for the more recent year to be the more significant variable.

Table 1 gives the variables, their meaning and their mean values for both groups of initial migrants. Most variables have similar means for the two groups. The repeat migration rates are 20.5 percent and

20.1 percent for the IM68-69 and IM69-70 groups respectively, but there are some noticeable differences in return (10.5 percent and 12.2 percent) and onward migration rates (10.0 percent and 7.9 percent respectively). These differences partly arise from the fact that the IM69-70 group does not include anyone who also moved in 1968-69, an arrangement that was chosen to avoid overlap between the two sets of micro data. This arrangement also accounts for the somewhat smaller means of the Return-variable for the IM69-70 group, and for that group's larger mean for the Tenure-variable. Some of the difference in return and onward migration rates may also be due to general economic conditions, which deteriorated during 1970. It will be noted that for the IM69-70 group the D-variable records lower means, although the "success" ranking is the same for both IM-categories; namely, stayers, onward and then return migrants. If the D-variable has more impact on return migration probabilities than on onward moves, then it is plausible that a declining business cycle will have a larger effect on return than onward migration rates. There is support for this contention in the empirical results.

Empirical Results

The main results are presented in Table 2. As there are three choices for initial migrants (return, move onward, or stay) the coefficients are estimated in the context of a polytomous logit model; the maximum likelihood routine is the M-logit part of the SAS-package. The reported coefficients relate to the (ln of) ratio of repeat migration probabilities (return, and onward) relative to the "stay" probability. The overall results are not spectacular, and quite a few of the t-statistics are small. It should be noted that such results are quite common for probability models using a large micro data base. Moreover, the elimination of insignificant variables has little effect on the coefficients and significance levels of the remaining variables. In other words, the results are quite robust.

Before discussing the main results of Table 2, it is useful to report on some preliminary tests that were conducted in the context of a linear probability model using ordinary least squares techniques.[3] Tests related to the dating of the D-variable indicate that for both

[3]It is noteworthy that the OLS version produces very similar results to the polytomous equations reported here, after appropriate scaling. Bionominal logit results are also very similar. The R^2 coefficients for OLS-equations equivalent to those reported in Table 2 are in the order of .04. OLS-results also confirm the robustness of the estimated equations, since elimination of insignificant coefficients has little effect on the estimates of remaining parameters.

Table 2

POLYTOMOUS LOGIT EQUATIONS
(Stayer Probability in Denominator)

	Initial Migration 1968-69				Initial Migration 1969-70			
	Return		Onward		Return		Onward	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
Age	-.008	1.3	-.018	2.7	-.015	2.3	-.022	2.5
Female	-.22	1.9	-.17	1.4	-.31	2.2	-.14	.8
Single					.07	.3	.05	.2
Married	-.33	2.9	-.22	2.0	-.48	1.9	-.18	.6
Other					.01	.0	.00	.0
S-M					-.36	1.9	.12	.6
M-O					.99	2.9	1.21	3.1
O-M					-.45	.7	.11	.2
Student	.34	2.5	.15	1.0	-.22	1.3	-.15	.8
Distance	.0001	.0	.034	4.5	.0011	.1	.038	3.8
Atl.	.17	1.0	.22	1.3	.42	2.2	-.18	.7
Que.	-.13	.9	-.22	1.4	-.13	.9	-.31	1.6
Prair.	.17	1.1	.47	3.3	.09	.5	.44	2.3
West.	.27	2.1	.12	.9	.59	4.2	.22	1.3
CHOCC.	-.09	.7	-.22	1.4	.12	.8	-.40	1.9
Non-Manu.	.04	.4	.25	2.3	.02	.1	.14	.7
Managers	.24	.9	.15	.6	-.06	.2	.42	1.4
Clerical	.14	.8	-.22	1.2	.01	.1	-.28	1.0
Sales	.55	2.4	-.21	.8	.33	1.2	.32	.9
Transp.	1.01	4.7	-.23	.7	.74	2.7	-.39	.8
Primary	.40	1.4	.20	.7	-.64	1.3	.79	2.0
Crafts	.22	1.4	-.14	.8	.24	1.3	-.15	.6
Lab.	.40	2.1	-.20	.9	.29	1.3	.32	1.1
Serv.	.30	1.2	-.07	.3	.28	.9	.03	.1
Never Moved	-.37	1.8	.06	.3	-.19	.9	.26	.9
Move 1	-.62	3.4	.50	3.5	-.16	.8	.70	3.6
Move 2	-.72	2.0	.82	3.3	.08	.2	1.06	3.0
Return	.10	.5	-.81	4.8	-.50	2.0	-1.17	4.5
Tenure	.15	1.9	-.12	1.6	.10	1.1	-.17	1.7
D-var.	-.37	5.1	-.23	2.9	-.24	2.9	-.15	1.5
WCY	-.007	3.4	-.005	2.8	-.002	1.0	-.002	.9
Constant	-1.55	7.6	-1.35	6.3	-1.41	3.7	-1.46	3.1
Log likelihood (at convergence)			-3081				-2139	

Note: SAS uses the Newton-Raphson method with convergence on each parameter (0.001) and 10 iterations maximum; actual convergence took 5 iterations.

groups (IM68-69 and IM69-70) the inclusion of the more recent version of this variable (D_{1970} and D_{1971} respectively) provides a somewhat better overall fit. In earlier tests a series of variables related to the individual's status with regard to dependents (as evident from exemptions in the tax record) were included, but these proved to be insignificant. We experimented with a number of variables related to prior migration experience, and the set reported in Table 2 (Never Moved, Move 1, Move 2, Return, and Tenure) proved to be the most successful. In particular, a variable related to three prior moves contained very few cases and was always insignificant.

We first report the results of the variables which were primarily used to test Hypothesis 1. The Non-Manu-variable has positive coefficients, but they are generally not significant. This provides weak support for the proposition that individuals employed in resource industries, construction, transportation, and service are more likely to move about repeatedly. Changes in occupational classifications appear to have little if any effect on repeat migration. Few of the occupational group variables have coefficients that are statistically significant, and even fewer are signficant for both sets of initial migrants. In fact, only the transport occupation appears to have a consistently and significantly higher probability of return migration.

About 13 percent of our sample was coded as "student", based on a tuition fee deduction on the tax record. Presumably a large proportion were part-time students enrolled in further education courses. In any case, the results regarding the effect of student status are mixed and generally not significant; for 1968-69 initial migrants the student variable indicates a significantly positive impact on the return migration probability.

The variables related to a change in marital status during the initial migration period are not all significant, but they do indicate that becoming married reduces the probability of a return migration decision, while a change from married to other (divorced, separated, widowed) tends to increase all repeat migration probabilities.

Repeat migration probabilities appear to be little influenced by the broad region from which (or within which) the individual migrated initially. All the coefficients related to Quebec are negative, but few are significant. People from Manitoba and Saskatchewan (Prair-variable) have a higher onward probability, and those who originally migrated within or from Alberta and British Columbia tend to return more frequently.

Prior migration experience has an important influence on the repeat move probabilities. Moreover, the effects of the various variables on return and onward migration are quite different. For the IM68-69 group, return migration is negatively affected by the occurrence of prior moves (Move 1 and Move 2) and by Never Moved. Collectively these results suggest that people without prior tax records (the omitted group accounting for about one-third) are more likely to be return migrants, perhaps because of labour force entry. For the IM68-69 group, prior moves appear to have an additional negative effect on return migration, indicating that for those individuals with prior tax records the probability of a return move is reduced if they have prior migration experience. These same three variables are, however, insignificant for the IM69-70 group. On the other hand, occurrence of prior moves has a strongly positive effect for onward possibilities, indicating a taste for travel and possibly acting as proxies for company transfers. Not unreasonably, if the initial move involved a return to an earlier region of residence (sometime in the 1965-68 period) subsequent repeat probabilities are reduced, particularly for onward probabilities.

We obtained reasonably strong support for Hypothesis 3. The propensity to migrate in general diminishes with age, and the results show that the probability of repeat migration is also negatively affected by age, with a somewhat smaller quantitative impact for return than for onward probabilities. To the extent that there are differences in migration costs for males and females, our results indicate that the female migrants are less likely to move again in the next year, with the negative effect on return possibilities being somewhat greater than for onward cases.

Prior wage income (WCY) has a negative impact on all repeat probabilities, although the effects are not significant for the IM69-70 group. In line with our hypothesis, this may be interpreted as implying that persons with higher incomes (and more education) have higher opportunity costs of repeat moves. However, there is another plausible interpretation of these results, which is in terms of the extent of premigration search. Persons with higher incomes may have been more informed about their initial migration choice as a result of a greater likelihood of premigration search.

The distance involved in the initial move appears to have no effect whatever on the probability of return migration; we discussed earlier that this variable may represent two opposing forces, the cost of moving and the possibility of premigration search prior to the initial move.[4] On the other hand, Distance has a strongly positive effect on the probability of onward migration. As indicated earlier, there are two reasons for expecting a positive effect of Distance (of the initial

[4]In an earlier specification the Distance-variable was interacted with the D-variable to allow for a possible association between disappointment and distance. No statistical support for this variable was obtained.

move) on (subsequent) onward migration probabilities, and this argument appears to be supported by the results.

Hypothesis 4 receives only weak empirical support. Although the Tenure-variable has rather weakly determined coefficients, the results suggest, not surprisingly, that length of residence has a positive effect on the return probability but a negative effect on the onward probability. Potentially there may be collinearity between the variables Tenure and Never Moved, but some tests that we conducted on this issue indicated that this was not a problem.

We now turn to the results involved in Hypothesis 2. The relative success of the initial move in terms of actual versus expected income (D-variable) has a significantly negative impact on repeat migration probabilities. We had expected that return migrants would be more strongly affected by disappointment than onward migrants, partly because the latter group is more likely to include intra-company transfers and people who enjoy moving for its own sake. There is some support for this, but the differences in coefficients of our D-variable between return and onward probability equations are not large. It is possible that our other independent variables, particularly those related to prior migration experience and to marital status, largely control for these elements.

While the effect of the relative success variable is significantly negative on repeat migration probabilities, its quantitative impact is not very large. The coefficients of the D-variables are roughly -.3 for return migration and about -.2 for onward migration. To provide some perspective on these estimates, we note that the standard deviation of our D-variable is about .6. If the relative success variable is reduced by .6 (or a standard deviation) then the return and onward migration probabilities would be increased by about 1.6 percent and 1 percent respectively, with a corresponding reduction in the stay probability of about 2.6 percent. Even in relation to average return and onward migration percentages in the 8 to 12 percent range, these increases in repeat migration probabilities do not represent a very large impact, particularly considering the fact that a .6 change in the relative success variable (equal to its standard deviation) signifies a large change, roughly equivalent to 50 percent of average wage income in 1970. We cannot compare these impact estimates with other empirical results. The only available evidence about the sensitivity of the return migration rate is in Vanderkamp [17]. It can be estimated from this source that the return migration rate (based on 1947-66 migration flows between seven broad Canadian regions) increased from 25 percent when unemployment was low (average rate about 3 percent) to 32 percent when unemployment was high (average rate about 5.7 percent). This seems to be a large impact, but the comparison with the present study's results are difficult since the methodology, data sources, and time period are all completely different.

For the IM68-69 group we can undertake a further analysis of delayed repeat migration decisions, since our data base extends to 1971. For this purpose we use the subgroup of 1968-69 initial migrants who stayed in the initial destination region during 1969-70, and we consider the probabilities of repeat migration in 1970-71. From the number of cases we calculate that 5.3 percent of the IM68-69 group return migrated in the second year (compared with 10.5 percent in the first year) and 6.4 percent became onward migrants in the second year (compared with 10 percent in the first year) after the initial move. Table 3 reports the polytomous logit estimates for these delayed migration decisions. The table contains two sets of estimates: the left part of the table concerns all the 3,971 cases who stayed in the initial destination region during 1969-70 (see Table 1), while the right hand side contains the estimates for 3,879 cases, which excludes those individuals who reported less than $100 worth of wage and commission income in 1971. The excluded group of 92 persons consists of individuals who for all intents and purposes dropped out of the work force in 1971. It was argued earlier that the D-variable becomes rather meaningless for persons who leave the work force, and these results confirm that.

The two sides of Table 3 show that the estimated coefficients are on the whole comparable. In particular, with the exception of the D-variable, the significant coefficients are all very similar. But the coefficients of the D-variable are considerably smaller and less significant, especially for the return probability, when the near-zero wage income group is included. This supports the notion that the performance of the disappointment variable is strongly influenced by the way in which we treat labour force exits, and it suggests that work force withdrawal is in fact an alternative to repeat migration and particularly to return movement.

Although broadly speaking the coefficients in Table 3 are somewhat less significant than the corresponding parameter estimates in Table 2, the general pattern of estimates is similar. Most coefficients that are significant have the same signs and are of comparable size; it should be noted that few of the occupational class variables are significant for the delayed migration equations. Aside from this, most generalizations reported after Table 2 are also valid here and will not be repeated.

The coefficients of the disappointment variable reported on the right hand side of Table 3 are similar to those given on the left side of Table 2. It should be remembered that these parameters relate to the odds of repeat migration versus staying, and the odds of repeat migra-

Table 3

POLYTOMOUS LOGIT EQUATIONS FOR DELAYED REPEAT MIGRATION MOVES 1970-71
(Initial Migration 1968-69, Stayer Probability in Denominator)

	All 3971 Cases Who Stayed 1969-70				3879 Cases Who Stayed 1969-70 with $WY_{71} > \$100$			
	Return (265)		Onward (321)		Return (256)		Onward (317)	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
Age	-.010	1.3	-.012	1.6	-.018	2.1	-.014	1.8
Female	.11	.7	-.31	2.1	.09	.6	-.31	2.1
Married	-.28	1.8	-.05	.4	-.24	1.6	-.07	.5
Student	.16	.8	.17	1.0	.11	.5	.19	1.1
Distance	-.019	1.5	.029	3.1	-.021	1.6	.029	3.1
Atl.	.39	1.8	-.13	.5	.44	1.9	-.09	.4
Que.	-.09	.5	-.39	2.1	-.03	.2	-.36	1.9
Prair.	-.12	.5	.10	.5	-.05	.2	.12	.7
West.	.24	1.4	.19	1.2	.20	1.1	.20	1.3
CHOCC.	.12	.7	.33	1.9	.17	.9	.35	1.9
Non-Manu.	.12	.8	-.18	1.3	.17	1.1	-.15	1.1
Managers	-.11	.3	.08	.3	-.37	.9	.09	.3
Clerical	.12	.5	.15	.7	.09	.4	.13	.6
Sales	.41	1.3	.36	1.3	.31	1.0	.37	1.3
Transp.	.12	.3	-.20	.5	-.00	.0	-.19	.5
Primary	.56	1.6	-.30	.7	.56	1.6	-.29	.7
Crafts	.41	2.0	-.25	1.2	.39	1.9	-.22	1.0
Lab.	-.21	.7	-.06	.2	-.24	.8	-.05	.2
Serv.	-.13	.3	-1.04	2.0	-.19	.5	-1.03	1.9
Never Moved	-.24	.9	.45	1.6	-.24	.8	.41	1.5
Move 1	-.29	1.2	.70	3.9	-.25	1.1	.65	3.6
Move 2	-.74	1.3	1.02	3.4	-.63	1.1	1.00	3.3
Return	-.09	.3	-1.29	5.8	-.15	.5	-1.24	5.6
Tenure	.16	1.5	-.18	1.8	.18	1.6	-.17	1.7
D-$var._{71}$	-.12	1.5	-.18	2.1	-.47	4.4	-.28	2.6
WCY	-.001	.5	-.002	1.1	-.002	.7	-.002	.9
Constant	-2.90	5.9	-2.65	5.5	-4.33	7.3	-3.14	5.4
Log Likelihood	-1985				-1931			

tion in the second year are only about half of those for the first year after initial migration. This means that the effect of an increase in disappointment on return and onward migration probabilities is in fact smaller for the second than for the first year. As indicated in Table 3, the D-variable is dated 1971. In other words, we selected the experience in the most recent year in analyzing the impact of disappointment. In some tests we used a D-variable for 1970, but this produced insignificant coefficients for this variable, although the other parameter estimates were generally similar. While the issue of timing regarding income experience and migration decisions remains somewhat ambiguous, these results suggest that the more recent experience is more relevant and that the repeat migration decisions follow closely on the heels of a disappointing experience.

Conclusion

The explanation of repeat migration probabilities is a difficult task, and our attempt has only been partly successful. Many of the explanatory variables are not significant, and the overall explanatory power of our equations is not very high. Perhaps a new survey with extensive sociological and psychological data will be necessary to provide a more complete explanation. At the same time, quite a few of the variables in our model are significant and have signs consistent with our hypotheses. In the area of personal characteristics, the variables related to age, sex, and marital status are generally significant and with expected signs. The Distance-variable has a strongly positive effect on onward move probabilities. Variables related to prior migration experience have an important impact that differs between return and onward probabilities. In particular, the occurrence of prior moves has a striking effect on the probability of onward migration.

The variable representing disappointment, or relative success of the initial move, plays a significant role in explaining repeat migration probabilities. The disappointment variable represents the (ln of) ratio of actual versus expected wage income in the year after the initial move, and its effect on both repeat migration probabilities is always negative and almost always highly significant. The repeat probabilities diminish after a year's stay in the destination region, but disappointment in the most recent year still has a bearing on the delayed repeat probabilities. While the quantitative impact of our disappointment variable is not large, it is difficult to draw comparisons since similar estimates are not available elsewhere.

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Appendix

EXAMPLE OF EARNINGS EQUATION REGRESSION
(Dependent Variable is logarithm of 1971 wage level)
Mean is 8.5870 ($5362)

	Coefficient	t-value	Mean Values of Variables
$\ln Y_0$	.70437	107.55	(8) .5322 ($5076)
$\ln Y_{0_2}$	.11174	33.79	
Age	-.00340	-11.00	-0.9 (39.1 years)
Age^2	-.00033	-16.64	
Age x $\ln Y_0$	.00244	7.71	
Age^2 x $\ln Y_0$	.00009	4.32	
FS	-.06781	-4.60	.068
FM	-.19931	-21.40	.192
Single	-.03919	-3.72	.185
Other M.S.	-.06302	-4.83	.063
Unknown M.S.	-.01541	-0.47	.008
White col.	.17650	21.68	.228
Blue col.	.13201	16.51	.268
CHIN	.00136	0.43	.688
ALLIN	-.03283	-4.18	.412
NOIN	.04255	4.43	.206
Student	.04821	3.65	.060
Union	.17813	27.47	.443
Rural	-.03139	-4.30	.377
No Tax 65	.00618	0.58	.236
No Tax 66	-.01894	-1.48	.156
No Tax 67	-.02850	-2.09	.082
Constant	8.06819	129.45	
Plus 43 regional dummies (1970)			
R^2	0.6592		

Definition of Terms

$\ln Y_0$	Logarithm of 1970 wage income minus 8
Age	Age as of 1971 minus 40
FS	1 = female and single (1971)
FM	1 = female and married (1971)
Single	1 = single (1971)
Other M.S.	1 = divorced, separated, widowed (1971)
Unknown M.S.	1 = unknown marital status
White col.	1 = occupational group (1971) is clerical, sales, service
Blue col.	1 = occupational group (1971) is transportation, primary, craftsman, production worker, labourer
CHIN	Number of industrial changes, 1965-71
ALLIN	1 = continuous membership in the insured population, 1965-70
NOIN	1 = never in the insured population, 1965-70
Student	1 = deduction for tuition fees in 1971
Union	1 = deduction for union membership (including professional association) in 1971
Rural	1 = located in rural area (1970): see [9], Appendix C
No Tax 65	1 = no tax record existed for individual in 1965